



LIBRARY
OF THE
UNIVERSITY
OF ILLINOIS

630.7

Il6b

no.470-485

cop. 2

AGRICULTURE

NON CIRCULATING

CHECK FOR UNBOUND
CIRCULATING COPY.

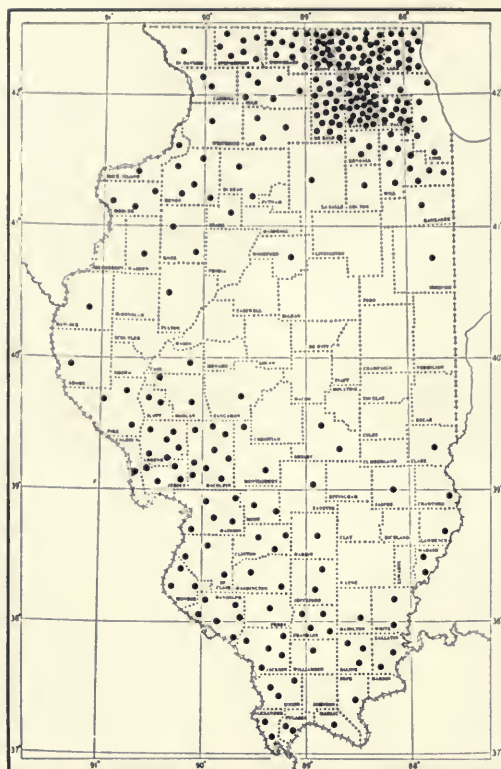


SPRING BARLEY

By G. H. Dungan and
W. L. Burlison

Bulletin 485

UNIVERSITY OF ILLINOIS
AGRICULTURAL EXPERIMENT STATION



Acreage of barley in Illinois. Each dot represents in round numbers 500 acres planted to barley as an average for 1939 and 1940. Spring-barley varieties are grown in the northern part of the state and winter varieties in the southern part.

CONTENTS

	PAGE
CHOOSING A VARIETY.....	588
Northern Illinois.....	588
Central Illinois.....	593
Southern Illinois.....	593
Wisconsin Barbless Best for Illinois.....	593
HAZARDS TO SPRING BARLEY.....	594
SOWING AND HARVESTING.....	595
SOME QUALITY REQUIREMENTS FOR MALTING.....	595

Spring Barley in Illinois

By G. H. DUNGAN and W. L. BURLISON¹

PRODUCTION OF SPRING BARLEY is confined to the northern half of Illinois, which lies within the southern limits of the spring-barley area of the United States. Most of the Illinois crop, however, is grown in the northernmost third of the state. In the southern half of Illinois the acreage of barley has increased in recent years but winter varieties are used almost exclusively. The spring-barley area and the winter-barley area are separated by a wedge-shaped section in the east-central portion of the state where practically no barley is produced.

Acreages and yields of barley in Illinois fluctuate widely from year to year. During the fifteen years 1927-1941 the area planted to barley, both spring and winter varieties, ranged from a low of 80,000 acres (1935) to a high of 624,000 acres (1928); the average for the period was 249,500 acres. The acre-yield during these years ranged from an average of 11 bushels in 1934 to 36.5 bushels in 1940.²

TABLE 1.—SMALL GRAINS: AVERAGE ACRE-YIELDS IN NORTHERN, CENTRAL, AND SOUTHERN ILLINOIS AND THEIR YIELD RANKING FOR THE STATE
(Tests in northern Illinois at DeKalb, 1938-1940; central Illinois, Urbana, 1938-1941; and southern Illinois, Alhambra, 1939-1941)^a

Grain and Rank	Northern	Central	Southern	Northern	Central	Southern	Average
	<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
1 Winter wheat.....	35.7	37.5	27.3	2 142	2 250	1 638	2 010
2 Spring oats.....	71.6	60.4	47.4	2 291	1 933	1 517	1 914
3 Spring barley.....	40.6	38.3	18.9	1 949	1 838	907	1 565
4 Winter barley.....	23.0	30.1	35.8	1 104	1 445	1 718	1 422
5 Spring wheat.....	18.8	18.8	8.5	1 128	1 128	510	933
6 Winter oats.....	0	21.2	51.5	0	678	1 648	775

^aThese years were selected because they were the only years when all six small grains were grown on the same field.

Of the six small grains produced in Illinois, spring barley ranks third in number of pounds of grain produced, according to the average of tests on the University's experimental fields (Table 1). Winter wheat ranks first and spring oats second.

¹G. H. DUNGAN, Chief in Crop Production; and W. L. BURLISON, Chief in Crop Production.

²Statistics on barley acreage and yields were furnished by the Illinois Co-operative Crop Reporting Service, Illinois Department of Agriculture cooperating with the U. S. Department of Agriculture.

The two highest ranking crops, winter wheat and spring oats, show the least yield fluctuation from one part of the state to another. Spring barley, on the other hand, yields well in northern Illinois, does fairly well in the central portion, but gives a very poor yield in the southern part of the state. In these tests spring barley averaged 76 percent higher yield than winter barley in northern Illinois, but in southern Illinois yielded only 53 percent as much as winter barley. Barley obviously is very sensitive to climatic conditions.

CHOOSING A VARIETY

Spring barleys vary widely in yielding ability, disease resistance, kind of awn and straw, and quality of grain (Table 2). To determine which varieties possess the greatest number of desirable characters and are best adapted to the area, twelve varieties have been grown during the past fifteen years on experiment fields in northern and central Illinois. Altho spring barley is not considered adapted to southern Illinois, two spring varieties have been tested on the Alhambra field during the past three years.

In these tests the varieties have been rated according to the number of bushels their yield exceeds or is exceeded by the average yield of all varieties in the test during the same years. In 1940 and 1941 the tests in northern and central Illinois were conducted so that the yield data could be analyzed statistically to determine significant differences.

Northern Illinois

The results obtained on the northern Illinois fields, DeKalb (1927-1940) and Mt. Morris (1941), are presented in Table 3.

Altho Trebi is the highest yielding variety, it has a weak, short straw and a rough awn, and the grain is entirely unsuited for malting. Even a slight mixture of Trebi renders any barley unfit for malting.

Regal ranks second in yield but it was grown for one year only. It has a smooth awn but its grain has a bluish color, making it inferior for malting.

Wisconsin Barbless ranks third with a yield of 3.7 bushels above the average for all varieties grown the same years. It has a barbless awn and a white comparatively mellow kernel acceptable for malting. Because of the favorable yield of Wisconsin Barbless and the general good quality of its grain, it is recommended over Trebi and Regal.

Even if Black Barbless had a higher yield, it would not be a good variety to grow because of its black kernels.

Silver King, which ranks fifth, is rough awned and yields only slightly above the average. It is a Manchuria type and is suitable for malting.



Trebi

Oder-
bruckerWisconsin
Barbless

Spartan

The plump rugged grain of Trebi is not suited for malting because of its steely texture. The kernels of Oderbrucker and Wisconsin Barbless, tho comparatively small, possess a mellowness which makes them acceptable for malting when they are blight-free. The broad plump kernels of Spartan are well suited for pearling. The awns of Spartan break easily, as will be noted; in fact, many drop off in the field before the crop is harvested.

TABLE 2.—CHARACTERISTICS OF SPRING BARLEY: 12 VARIETIES TESTED IN ILLINOIS

Variety	Station originating variety	Parent variety	Yield	Time of maturity	Grain quality for malting	Lodging resistance	Use ^a	Size of plant	Type of head	Type of awn
Black Barless.....	Michigan	Lion	High	Early	Unsuited	Medium	Feeding	Short	6-rowed	Barless
Glabor.....	Minnesota and U.S.D.A.	(Manchuria X Lion)	Medium	Medium	Fair	Good	Feeding	Tall	6-rowed	Barless
Ioglos.....	Iowa	Glabor	Medium	Medium	Good	Medium	Malting	Medium	6-rowed	Barless
Manchuria (N. Dak. 2121).....	North Dakota	Manchuria	Low	Medium	Good	Medium	Malting	Medium	6-rowed	Barbed
New Era Hull-less.....	South Dakota	(Nepal X Manchuria)	Low	Medium	Unsuited	Medium	Feeding	Medium	6-rowed	Barbed
Oderbrucker (Wis. Pedigree 5).....	Wisconsin	Oderbrucker	Low	Medium	Excellent	Medium	Malting	Tall	6-rowed	Barbed
Regal.....	Minnesota and Saskatchewan	(Manchuria X Lion)	High	Medium	Fair	Medium	Feeding	Medium	6-rowed	Barless
Silver King.....	Wisconsin	Manchuria	Medium	Medium	Good	Medium	Malting	Medium	6-rowed	Barbed
Spartan.....	Michigan	(Black Barless X Mich. Two-Row)	High	Early	Unsuited	Good	Pearling	Short	2-rowed	Barless
Trebi.....	Minnesota, Idaho, and U.S.D.A.	Importation	High	Medium	Unsuited	Poor	Feeding	Short	6-rowed	Barbed
Velvet.....	Minnesota	(Manchuria X Lion)	Medium	Medium	Good	Medium	Malting	Medium	6-rowed	Barless
Wisconsin Barless (Wis. Pedigree 38).....	Wisconsin	(Wis. Pedigree 5 X Lion)	High	Late	Good	Medium	Malting	Tall	6-rowed	Barless

^a Barleys that have the quality requirements for malting and pearling are also of course suitable for feeding.

In the last two years the tests were conducted so that the yields could be analyzed for significant differences. In 1940 Trebi, Regal, Wisconsin Barbless, and Ioglos yielded significantly more than the other varieties; in 1941 only Wisconsin Barbless produced a yield significantly higher than the others.

Central Illinois

Trebi also leads all other varieties in yield on the test field for central Illinois at Urbana (Table 4).

Second place is held by Spartan, a two-rowed smooth-awned variety that matures early. Altho two-rowed barleys are suitable for malting, they are not used by the trade in this country. Spartan, however, is a very desirable variety for pearling.

Wisconsin Barbless is third in yielding ability, but for malting it is recommended above all other varieties for central Illinois because it combines desirable yield and quality factors.

Even tho Black Barbless equals Wisconsin Barbless in yield in central Illinois, it is ruled out because of its black kernels.

Regal yields fairly well at Urbana but is low in quality. Ioglos, Silver King, Velvet, Oderbrucker, and Manchuria (North Dakota 2121) are all suitable for malting but yield low.

Glabron has a stiff straw, but it yields below the average and its kernels are rated low by the maltsters. New Era Hull-less has a rough awn and is a feed barley only.

During the two years that the yield data were analyzed statistically at Urbana, the varieties yielding significantly higher than the others were Wisconsin Barbless, Trebi, and Regal in 1940 and Wisconsin Barbless and Ioglos in 1941.

Southern Illinois

Only two varieties of spring barley, Spartan and Wisconsin Barbless, have been grown on the Alhambra field. Spartan, because of its earliness, produced much better yields than Wisconsin Barbless (Table 5). Since in southern Illinois barley is grown almost exclusively for feed, Spartan is the better variety for this area.

Wisconsin Barbless Is Best Variety for Illinois

Of all the spring-barley varieties tested, Wisconsin Barbless (Wisconsin Pedigree 38) is the most desirable from the standpoint of both yield and quality. It has a smooth awn and a white kernel. Altho its malting qualities are not so good as those of Oderbrucker, a variety which unfortunately yields low in Illinois, it is considered to be a very good malting barley.

TABLE 5.—SOUTHERN ILLINOIS: YIELDS OF VARIETIES OF SPRING BARLEY AT ALHAMBRA, 1939-1941
(Bushels per acre; date of seeding indicated under year)

Rank	Variety	Bushels above (+) or below (-) the average of all varieties*	Average yield	1939 Mar. 22	1940 Apr. 1	1941 Mar. 25 ^b
1	Spartan.....	+2.7	25.4	31.2	19.6
2	Wisconsin Barbless (Wis. Pedigree 38)...	-2.7	10.1	11.4	8.7
	Average.....			11.4	31.2	14.2

*Grown the same years as the variety indicated. ^bYielding ability of these two varieties can be compared for 1941 only, since only one of them was planted in each of the other two years.

Wisconsin Barbless, ranking near the top in yielding ability, takes advantage of a long growing period to fill its grain. It is later maturing than the other varieties but it apparently possesses resistance to injury from the early summer heat.

Besides its ability to stand the heat, Wisconsin Barbless also shows resistance to stripe disease. Growers who are not equipped to treat their seed with New Improved Ceresan but plant this variety will not suffer heavy losses during a season when this disease is prevalent.

In threshing there is danger that part of the glume will be torn from the back of the kernel. This occurs because the awn is not so brittle as that of most varieties and does not easily break at the tip of the kernel. The tearing of the glumes can be avoided if proper adjustments are made in the threshing machine or combine.

HAZARDS TO SPRING BARLEY

The most serious hazards to spring barley are: hot, dry weather during the time the grain is filling, epidemics of scab disease, and damage by chinch bugs.

Hot weather injury to spring barley can generally be avoided if seeding is done early. The plants will make a deep root growth and stool abundantly during the cool, short days and the grain will ripen early. Even tho hot weather comes before the crop is entirely mature, it will cause little reduction in the yield and quality of the grain if the process of filling is well advanced and the plants are deeply rooted.

The scab disease hazard can be reduced by sowing barley on soybean stubble or on plowed cornstalk land. The disease is caused by the fungus, *Gibberella saubinetii*, which attacks corn as well as small grains. If the cornstalks are left on top of the ground and the land is disked instead of being plowed, the spores of this fungus can be

carried from the cornstalks to the heads of the barley, especially if the weather is muggy during the time the grain is filling. When cornstalks are plowed under cleanly the source of infection is removed.

Barley growers know from experience that it is important to prevent scab disease. A scab-infected crop cannot be satisfactorily fed to horses or hogs and it is not acceptable for malting.

Since the chinch bug hazard is seldom serious in northern Illinois, barley may be grown in this area with comparative safety. It should be borne in mind, however, that barley is one of the chinch bug's most favored food plants and, if chinch bugs are abundant, they will cause serious trouble. The adjoining cornfields will be damaged after the barley has been killed or harvested.

SOWING AND HARVESTING

Spring barley may take the place of oats or some other spring crop in the rotation. It also fits in nicely after fall-seeded small grain which has been winterkilled. When seeded lightly spring barley is one of the best companion crops for small-seeded legumes and grasses because the plants give comparatively little shade during the grain-ripening period. They have rather wide leaf blades but the leaves die early.

For the best results use clean seed treated with New Improved Ceresan or some other disinfectant effective in controlling seedling blight. The seed should be sowed preferably with a drill at the rate of about 8 pecks an acre. Early seeding is so important, however, that if drilling causes an appreciable delay, it is better to seed broadcast. If the seed is broadcast, about 10 pecks an acre are needed.

When the crop is mature the plants are subject to lodging because the straw is weak. Even when barley lodges badly it can ordinarily be harvested with a combine. Whether the crop is harvested with a combine or a binder it should be threshed before the quality of the grain is impaired by weather damage.

SOME QUALITY REQUIREMENTS FOR MALTING

Barley is used in two ways—for feed and for industrial purposes, mainly for malt. Quality requirements are in most respects the same, but malting barley must meet the following standards not required of feed barley:

Germination should be high since nonviable kernels will yield no malt.

Uniform ripeness is important. Therefore green patches in the field should not be harvested with the rest of the crop.

Soundness is much more important than test weight per bushel. An

appreciable amount of damage, whether from disease, weathering, or mechanical injury, will make barley unfit for malting. Close threshing is especially harmful. If the awns are broken off too close, the kernels will be skinned. To prevent this type of injury the grain should be examined frequently as it is being threshed and adjustments made in the combine or separator.

Mellowness is very desirable in malting barley. It is recognized by a chalky appearance of the cut kernel, whereas flinty or steely barleys appear hard and glassy when cut. Mellowness usually develops when the season is cool and ripening is not hastened. Barley grown in Illinois usually ranks high in mellowness, but some varieties are inherently better in this respect than others.

The *kind of variety and its purity* also determine suitability for malting. Only a few varieties, such as Oderbrucker, Wisconsin Barbless, Velvet, and Manchuria, are acceptable to the maltster, and these varieties must be free from even a slight mixture with other types.

SPRING BARLEY is adapted to the northern half of Illinois, which lies within the spring-barley area of the United States.

Wisconsin Barbless (Wisconsin Pedigree 38) is the best all-round variety for Illinois. It is smooth-awned, high-yielding, and suitable for malting. It also possesses resistance to stripe disease.

In the southern part of the state, where spring barley is not well suited, the best variety is Spartan. It is a smooth-awned, two-rowed variety suitable for pearling and feeding. It matures early and tillers abundantly.

AUTHOR INDEX

- | | PAGE | | PAGE |
|---|---------|--|---------|
| 1. ASHBY, R. C., WEBB, R. J., HEDLUND, E. C., and BULL, S. Retailer and Consumer Reaction to Graded and Branded Beef..... | 337-392 | 15. DUNGAN, G. H., and BURLISON, W. L. Spring Wheat: Adaptability for Illinois..... | 529-540 |
| 2. BIGGER, J. H. <i>See</i> COPPER 10, 11 | | 16. DUNGAN, G. H., BONNETT, O. T., and BURLISON, W. L. Spring Oat Varieties for Illinois..... | 441-472 |
| 3. BOLIN, O. <i>See</i> COPPER 10, 11 | | 17. DUNGAN, G. H. <i>See</i> COPPER 10, 11 | |
| 4. BONNETT, O. T. <i>See</i> DUNGAN 16 | | 18. GRAHAM, R., and BRANDLY, C. A. Immunization Against Pox in Domestic Fowl..... | 1-76 |
| 5. BRANDLY, C. A. Propagation of Fowl- and Pigeon-Pox Viruses in Avian Eggs and Use of Egg-Cultivated Viruses for Immunization..... | 309-336 | 19. HEDLUND, E. C. <i>See</i> ASHBY 1 | |
| 6. BRANDLY, C. A. <i>See</i> GRAHAM 18 | | 20. JOHNS, IDA D. <i>See</i> LINDSTROM 24 | |
| 7. BULL, S., SNAPP, R. R., and RUSK, H. P. Effect of Pasture on Grade of Beef..... | 225-256 | 21. KOEHLER, B. Effect of Storage on Yields of Farm Seed Treated for Disease Control.... | 257-276 |
| 8. BULL, S. <i>See</i> ASHBY 1 | | 22. KOEHLER, B. <i>See</i> COPPER 10, 11 | |
| 9. BURLISON, W. L. <i>See</i> DUNGAN 14, 15, 16 | | 23. LANG, A. L. <i>See</i> COPPER 10, 11 | |
| 10. COPPER, R. R., DUNGAN, G. H., LANG, A. L., BIGGER, J. H., KOEHLER, B., and BOLIN, O. Illinois Corn Performance Tests, 1940..... | 173-224 | 24. LINDSTROM, D. E., and JOHNS, IDA D. Rural Relief in Illinois; A Study of Home Assistance in Thirteen Counties..... | 393-440 |
| 11. COPPER, R. R., DUNGAN, G. H., LANG, A. L., BIGGER, J. H., KOEHLER, B., and BOLIN, O. Illinois Corn Performance Tests, 1941..... | 473-528 | 25. LLOYD, J. W. Range of Adaptation of Certain Varieties of Vegetable-Type Soybeans.. | 77-100 |
| 12. DeTURK, E. E. The Problem of Phosphate Fertilizers..... | 541-584 | 26. NORTON, L. J. Business Policies of Country Grain Elevators..... | 277-308 |
| 13. DORSEY, M. J. The Low-Temperature Hazard to Set of Fruit in the Apple..... | 145-172 | 27. RUSK, H. P. <i>See</i> BULL 7 | |
| 14. DUNGAN, G. H., and BURLISON, W. L. Spring Barley in Illinois..... | 585-596 | 28. SNAPP, R. R. <i>See</i> BULL 7 | |
| | | 29. WEBB, R. J. <i>See</i> ASHBY 1 | |
| | | 30. WINTERS, E. The Migration of Iron and Manganese in Colloid Systems..... | 101-144 |

INDEX

	PAGE
APPLE, THE LOW-TEMPERATURE HAZARD TO SET OF FRUIT IN THE.....	145-170
literature cited.....	170
summary and conclusions.....	169-170
<i>See also</i> Contents in bulletin.....	146
Barley	
yield, effect of storage of seed treated for disease.....	261-263
Barley, spring	
acreage.....	586, 587
yields, average acre-yield compared with other grains.....	587
BARLEY, SPRING, IN ILLINOIS.....	585-596
<i>See</i> Contents in bulletin.....	586
Barley, winter, yields, average acre-yield compared with other grains.....	587
Beef	
grades, factors which determine.....	227-229
grades and brands.....	337-391
grading chart.....	228
BEEF, EFFECT OF PASTURE ON GRADE OF.....	225-256
summary and conclusions.....	255-256
<i>See also</i> Contents in bulletin.....	226
BEEF, RETAILER AND CONSUMER REACTION TO GRADED AND BRANDED.....	337-391
summary and conclusions.....	389-391
<i>See also</i> Contents in bulletin.....	338
Blind pensions, <i>see</i> RURAL RELIEF IN ILLINOIS	
Cattle, beef, pasture feeding, effect on grade of beef :.....	225-256
Chickens	
fowl- and pigeon-pox viruses.....	311-336
fowl pox, immunization against.....	1-76
COLLOIDAL SYSTEMS, THE MIGRATION OF IRON AND MANGANESE IN.....	101-143
literature cited.....	141-143
summary and conclusions.....	139-141
<i>See also</i> Contents in bulletin.....	102
Corn	
ear rot.....	181-182, 480
insect damage during 1940 growing season.....	180
lodging.....	183, 196-197, 213, 479, 483, 500, 503, 504, 507, 510, 515
rootworm.....	479
smut.....	180-181, 483
stalk breaking.....	483
stalk rot.....	480, 481-482
Stewart's disease.....	483
yield, effect of storage of seed treated for disease.....	264-272
Corn hybrids	
performance tests in Illinois.....	173-223
yields compared with open-pollinated varieties.....	184-185, 486, 487-488
CORN PERFORMANCE TESTS, ILLINOIS, 1940.....	173-223
summary.....	219-220
<i>See also</i> Contents in bulletin.....	174
CORN PERFORMANCE TESTS, ILLINOIS, 1941.....	473-528
index to entries.....	525-527
summary.....	524
<i>See also</i> Contents in bulletin.....	474
Ear rot in corn.....	181-182, 480
Farm Security Administration, <i>see</i> RURAL RELIEF IN ILLINOIS	

	PAGE
FARM SEED TREATED FOR DISEASE CONTROL, EFFECT OF STORAGE	
ON YIELDS.....	257-276
recommendations.....	274-276
summary.....	272-274
<i>See also</i> Contents in bulletin.....	258
FERTILIZERS, THE PROBLEM OF PHOSPHATE.....	541-583
literature cited.....	581-582
summary and recommendations.....	578-581
<i>See also</i> Contents in bulletin.....	542
FOWL- AND PIGEON-POX VIRUSES IN AVIAN EGGS, PROPAGATION OF,	
AND USE OF EGG-CULTIVATED VIRUSES FOR IMMUNIZATION.....	311-336
bibliography.....	335-336
summary.....	333-334
<i>See also</i> Contents in bulletin.....	312
Fowl pox, <i>see also</i> POX IN DOMESTIC FOWL	
GRAIN ELEVATORS, BUSINESS POLICIES OF COUNTRY.....	277-308
summary and conclusions.....	307-308
<i>See also</i> Contents in bulletin.....	278
Iron, migration in colloidal systems.....	101-143
Lodging in corn.....	183, 196-197, 213, 479, 483, 500, 503, 504, 507, 510, 515
Lodging in oats.....	459-463
Manganese, migration in colloidal systems.....	101-143
Mothers' pensions, <i>see</i> RURAL RELIEF IN ILLINOIS	
Oat straw	
yields of varieties of spring oats.....	455, 456-457, 467
Oats	
acreage, increase in.....	443
lodging.....	459-463
soil treatment on test fields.....	445-446
yield, effect of storage of seed treated for disease.....	260-261
yields, <i>see</i> OATS, SPRING, VARIETIES FOR ILLINOIS	
Oats, spring	
yields, average acre-yield compared with other grains.....	587
OATS, SPRING, VARIETIES FOR ILLINOIS.....	441-471
summary.....	470-471
<i>See also</i> Contents in bulletin.....	442
Oats, winter	
yields, average acre-yield compared with other grains.....	587
Old-age assistance, <i>see</i> RURAL RELIEF IN ILLINOIS	
Pasture, feed for beef cattle.....	225-256
PHOSPHATE FERTILIZERS, THE PROBLEM OF.....	541-583
literature cited.....	581-582
summary and recommendations.....	578-581
<i>See also</i> Contents in bulletin.....	542
Pigeon-pox viruses	
immunization studies.....	1-76
propagation.....	311-336
POX IN DOMESTIC FOWL, IMMUNIZATION AGAINST.....	1-76
bibliography.....	72-76
summary.....	69-72
<i>See also</i> Contents in bulletin.....	2
Rootworm in corn.....	479
RURAL RELIEF IN ILLINOIS, A STUDY OF HOME ASSISTANCE IN	
THIRTEEN COUNTIES.....	393-440
summary.....	437-439
<i>See also</i> Contents in bulletin.....	394

	PAGE
Seed treatment	
disinfectants used	257-276
effect of storage on seed treated for disease	257-276
Soil characteristics of corn testing fields	176-179, 476, 478
Soils, migration of iron and manganese in colloidal systems	101-143
Soybeans, vegetable	
canning	99
freezing	99
SOYBEANS, VEGETABLE-TYPE, RANGE OF ADAPTATION OF CERTAIN	
VARIETIES OF	77-100
summary	100
<i>See also</i> Contents in bulletin	78
Stewart's disease	483
Veterans' aid, <i>see</i> RURAL RELIEF IN ILLINOIS	
Wheat	
yield, effect of storage of seed treated for disease	263-264
Wheat, spring	
varieties, characteristics	539
yield compared with yield of winter wheat	531, 533
yields	533, 536-538
yields, average acre-yield compared with other grains	587
WHEAT, SPRING: ADAPTABILITY FOR ILLINOIS	529-540
summary of recommendations	540
<i>See also</i> Contents in bulletin	530
Wheat, winter	
yields, average acre-yield compared with other grains	587
Works Progress Administration, <i>see</i> RURAL RELIEF IN ILLINOIS	





UNIVERSITY OF ILLINOIS-URBANA

Q 630.71L68
BULLETIN, URBANA
470-485 1940-42

C002



3 0112 019529301